AMENDMENT AND RESPONSE UNDER 37 CFR § 1.111
Serial Number: 10/624,533
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Title: High-performance hashing system

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REMARKS

Applicants have carefully reviewed and considered the Office Action mailed on August 15, 2006, and the references cited therewith. Claims 1 and 14 are amended. Claims 1-40 remain pending in this application.

35 USC § 101 Rejection of the Claims

Claims 1 – 24 were rejected under 35 USC § 101 because the claimed invention lacks patentable utility. The Office Action indicates that claims 25 – 40 establish a tangible result of data retrieval, but claims 1 – 24 fail to do the same. Consistent with this statement, applicants have amended independent claims 1 and 14 to recite "apparatus for use in data retrieval" and "the second memory array being configured to provide data being retrieved." As amended, applicants submit that independent claims 1 and 14 to the apparatus establish a tangible result of data retrieval. Accordingly, applicants request that the rejection under 35 U.S.C. § 101 be withdrawn

35 USC § 112 Rejection of the Claims

Claims 1 – 24 were rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Office Action notes that there is insufficient antecedent basis for "the first array" recited in claims 1 and 14. Applicants have amended independent claims 1 and 14 to recite "the first memory array" consistent with the introduction of "a first memory array." Accordingly, applicants submit that antecedent basis is now corrected and requests that the rejection under 35 U.S.C. § 112, second paragraph, be withdrawn.

35 USC §102 Rejection of the Claims

Claims 1 – 40 were rejected under 35 USC § 102(b) as being anticipated by U.S. Patent No. 6,067,547 to Douceur ("Douceur"). Applicants respectfully traverse this rejection.

Independent claims 25 and 33 recite data retrieval methods that comprise, *inter alia*, "retrieving a second data unit from a respective second memory array using the index value and a position of the signature value." Consistent with claims 25 and 33 and to provide clarification,

independent apparatus claims 1 and 14 have been amended to recite "the comparator having an output for a position of a matching signature value." Support for this amendment may be found in the present application, for example, on page 3, paragraph 14, which states "comparator 140 may detect not only a match between signatures but also the matching signature's slot position within the data unit 122" and "the comparator may generate an output on line 142 indicating that a signature match occurred at the third slot position." In describing one embodiment, the present application further states, in paragraph 16, that "[t]he signature's position helps determine the payload data's position in memory and permits the system to avoid traipsing across multiple entries in the linked list system."

Applicants respectfully submit that Douceur does not anticipate amended independent apparatus claims 1 and 14 or independent method claims 25 and 33 because Douceur does not disclose the use of the _position_ of a matching signature value as claimed. The Office Action indicates that column 4, lines 21-28, of Douceur "discloses splitting the hash into an index and a signature." With respect to the use of the "position" of the signature value to retrieve the second data unit, the Office Action refers to column 1, line 35 to column 2, line 37 of Douceur. Applicants respectfully disagree with this characterization of Douceur.

Although column 4, lines 21-28, of Douceur refers to comparison of a "signature value of the key," this referenced section of Douceur does not mention the _position_ of the signature value. In particular, Douceur does not appear to disclose the _position_ of the signature value as an output of a comparator, as recited in independent claims 1 and 14, or using the _position_ of the signature value together with an index value to retrieve a second data unit, as recited in independent claims 25 and 33. In contrast, Douceur states that a "performance improvement can be made by storing a signature value of the key _along with each record_" (emphasis added) (see col. 4, line 22). If the signature value is stored along with each record in Douceur, as understood by applicants, a _position_ of the matching signature value (e.g., in a first data unit) would not be an output of the comparison and would not be used to retrieve a second data unit. With respect to columns 1 and 2 of Douceur, also referenced in the Office Action, there is no mention in these columns of a _position_ of a matching signature value.

Applicants further submit that Douceur does not disclose the use of at least two or a plurality of index values and a signature value, as recited in independent claims 14 and 33. The

Office Action asserts that column 18, lines 10-35, and Fig. 13 are directed to generation of multiple index values. Applicants respectfully submit that the referenced section and Figure 13 of Douceur disclose a pointer array 92 with pointers corresponding to the hash table segments. According to Douceur, the pointer array 92 is merely an alternative way of pointing from one hash table segment to a previous hash table segment, instead of including the pointers in the segment itself. Nothing in Douceur suggests that the pointer array 92 is the same as or corresponds to multiple index values generated by a hash value generator or hash function. Thus, Douceur does not appear to disclose a plurality of index values and a signature value output from a hash value generator, as recited in claims 1 and 14, or generated through a hash function, as recited in claims 25 and 33.

Because Douceur does not identically disclose the apparatus recited in independent claims 1 and 14 or the method recited in independent claims 25 and 33, applicants submit that these independent claims, and the claims dependent therefrom, are not anticipated by Douceur. Accordingly, applicants request that the rejection under 35 U.S.C. 102(b).

The dependent claims 2-13, 15-24, 26-32 and 34-40 all depend, either directly or indirectly from independent claims 1, 14, 25 and 33, respectively. Applicants submit that these claims are also not anticipated by virtue of their dependency and also based on limitations recited therein. In particular, dependent claims 8-10, 19-21, 30-32, and 38-40 recite inputs for or input data that is "IP source and destination addresses and TCP source and destination port designators." Applicant respectfully points out that Douceur never mentions this type of data. In addressing claims 30-32, the Office Action asserts that "Douceur method has no limitation on type and length of data that is input to the system." Even if this were true, however, the fact that Douceur does not limit the type of data does not mean that Douceur anticipates a specific type of data, such as the claimed IP/TCP data. To anticipate the claims, Douceur must identically disclose each and every element and limitation, either explicitly or inherently. Douceur does not explicitly mention TCP or IP data, and the Office Action has failed to establish that this type of data is necessarily used in the system and method of Douceur. For this additional reason, applicants submit that dependent claims 8-10, 19-21, 30-32, and 38-40 are not anticipated over Douceur.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (603-668-6560) to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 50-2121.

Respectfully submitted,

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